

REMARKS

Claims 1-10 were filed with the present application. The Examiner divided the claims into two separate groups of inventions for examination purposes. Claims 1-8 were elected and claims 9 and 10 were withdrawn by the Examiner. Claims 1-8 are cancelled and new claims 11 and 12 are added by this amendment. Therefore, claims 11 and 12 are currently pending.

The Invention

The present invention provides heat-sealable multilayer plastic films for packaging and labeling. The films of the invention fill a need in the art for heat-sealable films compatible with modern high speed packaging machinery and suitable for use with heat-sensitive items such as ice cream bars and ice cream sandwiches.

The first film of the present invention does not exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F and is formed from the following layers:

- i) a cavitated core layer comprising polypropylene homopolymer of high stereoregularity and about 8% polybutylene terephthalate as a cavitating agent, 600ppm phosphite antioxidant, and about 300ppm fluoropolymer anti-condensing agent; said core layer comprising about 63% of the total film thickness and having a first and a second surface;
- ii) a top tie layer comprising polypropylene homopolymer and about 4% TiO₂, said top tie layer comprising about 15% of the total film thickness and being positioned adjacent to said first surface of the core layer;
- iii) a top skin layer comprising polypropylene, about 0.23% SiO₂ in the form of coated silica and about 0.2% methyl acrylate antiblock agent; said top skin layer comprising about 2.5% of the total film thickness and being positioned adjacent to said top tie layer;
- iv) a bottom tie layer comprising polypropylene, said bottom tie layer comprising about 15% of the total film thickness and being positioned adjacent to said second surface of the core layer; and

- v) a bottom skin layer comprising an ethylene-propylene-butylene terpolymer, about 0.1% SiO₂, about 1.2% silicone oil antiblock, and about 0.1% crosslinked silicone antiblock slip agent; said bottom skin layer comprising about 4% of the total film thickness and being positioned adjacent to said bottom tie layer.

The second film of the present invention likewise does not exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F and is formed from the following layers:

- i) a cavitated core layer comprising polypropylene homopolymer of high stereoregularity; a cavitating agent comprising about 8% polybutylene terephthalate, about 600ppm phosphite antioxidant, and about 300ppm fluoropolymer anti-condensing agent; said core layer comprising about 63% of the total film thickness and having a first and a second surface;
- ii) a top tie layer comprising polypropylene and about 4% TiO₂, said top tie layer comprising about 15% of the total film thickness and being positioned adjacent to said first surface of the core layer;
- iii) a top skin layer comprising an ethylene-propylene-butylene terpolymer, about 0.23% SiO₂ in the form of coated silica, and about 0.2% methyl acrylate antiblock agent, said top skin layer comprising about 2.5% of the total film thickness and being positioned adjacent to said top tie layer;
- iv) a bottom tie layer comprising polypropylene, said bottom tie layer comprising about 15% of the total film thickness and being positioned adjacent to said second surface of the core layer; and
- v) a bottom skin layer comprising an ethylene-propylene-butylene terpolymer, about 1.2% silicone oil antiblock, and about 0.1% crosslinked silicone antiblock slip agent; said bottom skin layer comprising about 4% of the total film thickness and being positioned adjacent to said bottom tie layer.

Rejections of the claims

REJECTION OF CLAIM 1 UNDER 35 U.S.C. §102(b)

In the Office Action of January 31, 2002 the Examiner rejected claim 1 as allegedly anticipated by Schuhmann et al., U.S. Patent 5,326,625. According to the Examiner, the abstract of the Schuhmann et al. reference discloses a sealable opaque multilayer polypropylene film that satisfies the requirements of the claimed films. The Examiner states that Schuhmann et al. discloses TiO₂, white pigment as an additive in an intermediate layer, and a top layer having SiO₂ as an antiblock agent and polydimethylsiloxane as a lubricant. Therefore, according to the Examiner, Schuhmann et al. anticipates the claimed subject matter.

Applicants have canceled claim 1 without conceding the Examiner's arguments. Further, the Schuhmann et al. patent nowhere discloses the compositions of the films of the currently pending claims 11 and 12. Therefore, the rejection under 35 U.S.C. §102(b) for alleged anticipation by Schuhmann et al. is moot.

REJECTION OF CLAIMS 2 AND 3 UNDER 35 U.S.C. §103(a)

The Examiner rejected claims 2 and 3 as allegedly unpatentable over Schuhmann et al., U.S. Patent 5,326,625 in view of Keller et al., U.S. Patent 5,691,043. According to the Examiner, Schuhmann et al. disclose a top skin layer comprising polypropylene and SiO₂; a bottom skin layer comprising a terpolymer of ethylene-propylene-butylene and SiO₂.

The Examiner concedes that the Schuhmann et al. reference is silent as to polybutylene terephthalate (PBT) of the core layer and crosslinked silicone of the bottom top (sic) layer. However, Keller teaches that the core layer may comprise PBT as the cavitating agent and that a skin layer may comprise silicone oil and cross-linked silicone. According to the Examiner, it would have been obvious for one of ordinary skill to have incorporated PBT into the core layer, motivated by the desire to form microvoids resulting in a white opaque film and to incorporate silicone oil and cross-linked silicone into the bottom top (sic) layer motivated by the desire to reduce the coefficient of friction properties of the film.

Further, with regard to claim 3, the Examiner states that Schuhmann et al. disclose the top skin layer comprising 0.1% to 0.5% SiO₂ and CaCO₃ and the intermediate layer comprising 3% TiO₂.

REJECTION OF CLAIM 6 UNDER 35 U.S.C. §103(a)

At page 4 of the Office Action of January 31, 2002 the Examiner rejected claim 6 as allegedly unpatentable over Schuhmann et al., U.S. Patent 5,326,625 in view of Keller et al., U.S. Patent 5,691,043 as applied to claim 1, further in view of Falla et al., U.S. Patent 5,674,944. According to the Examiner, the combination of Schuhmann et al., and Keller et al. teach every element of claim 6, except a phosphite and fluoropolymer as the additives in the core layer. The Examiner states that Falla et al. supplies the missing features: phosphite antioxidant and fluoropolymer as a processing aid. According to the Examiner, it would have been obvious for one of ordinary skill to have incorporated phosphite and fluoropolymer into the core layer motivated by the desire to achieve ease of handling and to stabilize the product processing.

REJECTION OF CLAIMS 7 AND 8 UNDER 35 U.S.C. §103(a)

At page 5 the Examiner rejected claims 7 and 8 as allegedly unpatentable over Schuhmann et al., in view of Keller et al., and Falla et al., as applied to claim 6, and further in view of Crighton et al., U.S. Patent 6,235,143. According to the Examiner, the combination of Schuhmann et al., Keller et al. and Falla et al. teaches every element of the claims except the methyl acrylate antiblock agent, concentrations of the methyl acrylate, phosphite and fluoropolymer.

Crighton et al. disclose a heat sealed polymeric film comprising polymethacrylate antiblock agent in the skin layer of the film. According to the Examiner, it would have been obvious to one of ordinary skill to have incorporated a polymethacrylate antiblock agent into the

top skin layer motivated by the desire to obtain a film having good sealing with high slip on the heat seal jaws.

Furthermore, according to the Examiner, it would have been obvious to one of ordinary skill to have altered the amount of additive of the film since it has been held (*In re Aller* 105 U.S.P.Q. 233) that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

REJECTION OF CLAIMS 4 AND 5 UNDER 35 U.S.C. §103(a)

At page 6 the Examiner rejected claims 4 and 5 as allegedly unpatentable over Schuhmann et al., in view of Keller et al. as applied to claim 3, and further in view of Falla et al., and Crighton et al. According to the Examiner, the combination of Schuhmann et al., Keller et al. and Falla et al. teaches every element of the claims except coated silica, the methyl acrylate antiblock agent of the top skin layer, phosphite and fluoropolymer as additives of the core layer, and the concentrations of these additives.

Further, the Examiner states, there is nothing convincing in the record to show that coated silica is better than uncoated silica as an antiblock agent. The Examiner takes Official Notice of the equivalence of coated and uncoated silica as antiblock agents. Therefore, in the Examiner's opinion, it would have been obvious to one of ordinary skill to incorporate coated silica into the top skin layer.

The Examiner then states that Falla et al. discloses the additives including phosphite antioxidant and fluoropolymer as a processing aid, and Crighton et all. discloses heat a sealed polymeric film comprising a polymethacrylate antiblock agent in the skin layer of the film. According to the Examiner, the concentration ranges and thicknesses of the layers involves only routine skill.

RESPONSE TO OBVIOUSNESS REJECTIONS

Applicants have canceled claims 1-8 without conceding the Examiner's arguments. Therefore the rejection of these claims under 35 U.S.C. §103(a) is moot.

Applicants maintain that newly added claims 11 and 12 are not obvious over the cited combination of Schuhmann et al., in view of Keller et al. The combination of the Schuhmann et al. patent and the Keller et al. patent taken as a whole does not disclose or suggest the selection of the components and amounts of these components, or the thicknesses of the layers of the multilayer films of claim 11 or claim 12. Therefore, the above-cited rejection cannot be applied to the films of claims 11 or claim 12.

Applicants further maintain that newly added claims 11 and 12 are not obvious over the cited combination of Schuhmann et al., in view of Keller et al. and Falla et al. The combination of the Schuhmann et al. patent and the Keller et al. and Falla et al. patents taken as a whole does not disclose or suggest the selection of the components and amounts of these components, or the thicknesses of the layers of the multilayer films of claim 11 or claim 12. Therefore, the above-cited rejection cannot be applied to the films of claims 11 or claim 12.

Applicants still further maintain that newly added claims 11 and 12 are not obvious over the cited combination of Schuhmann et al. patent in view of Keller et al. and Falla et al. and Crighton et al. The combination of the Schuhmann et al. patent and the Keller et al. and Falla et al. and Crighton et al. patents taken as a whole does not disclose or suggest the selection of the components and amounts of these components, or the thicknesses of the layers of the multilayer films of claim 11 or claim 12. Therefore, the above-cited rejection cannot be applied to the films of claims 11 or claim 12.

Applicants yet further maintain that newly added claims 11 and 12 are not obvious over the cited combination of Schuhmann et al. patent in view of Keller et al. and Falla et al. and Crighton et al. The combination of the Schuhmann et al. patent and the Keller et al. and Falla et

al. and Crighton et al. patents taken as a whole does not disclose or suggest the selection of the components and amounts of these components, or the thicknesses of the layers of the multilayer films of claim 11 or claim 12. Therefore, the above-cited rejection cannot be applied to the films of claims 11 or claim 12.

Applicant respectfully points out that only the combined teachings of cited references as a whole may be used for an obviousness rejection. MPEP §2145 X.C. It is impermissible to pick and choose among the disclosures of cited references in order to reconstruct the claimed invention.

Accordingly, it is impermissible to select those components from each of the three secondary references, Keller et al. and Falla et al. and Crighton et al. to modify the compositions of the films of the primary reference, Schuhmann et al. to reconstruct the compositions of the claimed films. MPEP §2141.02.

Furthermore, Applicants assert that the coated silica additive of the top skin layer of the films of claims 11 and 12 is not equivalent to the uncoated silica of the prior art. As stated by co-inventor Jay J. Keung in his declaration under 37 C.F.R. §132 of April 19, 2002, coated silica is preferred as it provides a significant advantage over uncoated silica.

Coated silica provides a lower Coefficient of Friction (COF) than uncoated silica and for this reason is preferred over uncoated silica as the antiblock agent of the top layer of the films of U.S. Patent Application Serial No. 09/666,928.

Since there is no hint or suggestion, much less any invitation to use coated silica for the antiblock agent of the layer of the films of the present invention, Applicants respectfully assert that this could not be an obvious variant to one of ordinary skill in the art at the time the invention was filed.

U.S. Serial No. 09/666,928
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Docket No. 10188
Page 11 of 14

For all the above reasons, Applicants respectfully assert that the claimed invention is not obvious over the cited combination of Schuhmann et al. patent in view of Keller et al. and Falla et al. and Crighton et al.

Applicants respectfully submit that the application, as amended, is now in proper form for allowance, which action is earnestly solicited. If resolution of any remaining issue is required prior to allowance of the application, it is respectfully requested that the Examiner contact Applicant's undersigned attorney at the telephone provided below.

Respectfully submitted,



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Attorney for Applicant(s)

VERSION OF AMENDMENT WITH MARKINGS

TO SHOW CHANGES MADE

IN THE CLAIMS:

Please cancel claims 1-8 and add new claims 11 and 12 as follows:

11. (New) A heat-sealable multilayer white opaque plastic film, comprising:
 - i) a cavitated core layer comprising polypropylene homopolymer of high stereoregularity and about 8% polybutylene terephthalate as a cavitating agent, 600ppm phosphite antioxidant, and about 300ppm fluoropolymer anti-condensing agent; said core layer comprising about 63% of the total film thickness and having a first and a second surface;
 - ii) a top tie layer comprising polypropylene and about 4% TiO₂, said top tie layer comprising about 15% of the total film thickness and being positioned adjacent to said first surface of the core layer;
 - iii) a top skin layer comprising polypropylene, about 0.23% SiO₂ in the form of coated silica and about 0.2% methyl acrylate antiblock agent; said top skin layer comprising about 2.5% of the total film thickness and being positioned adjacent to said top tie layer;
 - iv) a bottom tie layer comprising polypropylene, said bottom tie layer comprising about 15% of the total film thickness and being positioned adjacent to said second surface of the core layer; and

v) a bottom skin layer comprising an ethylene-propylene-butylene terpolymer, further comprises about 0.1% SiO₂, about 1.2% silicone oil antiblock, and about 0.1% crosslinked silicone antiblock slip agent; said bottom skin layer comprising about 4% of the total film thickness and being positioned adjacent to said bottom tie layer; and wherein the film does not exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F.

12. (New) A heat-sealable multilayer white opaque plastic film, comprising:

- i) a cavitated core layer comprising polypropylene homopolymer of high stereoregularity; a cavitating agent comprising about 8% polybutylene terephthalate, about 600ppm phosphite antioxidant, and about 300ppm fluoropolymer anti-condensing agent; said core layer comprising about 63% of the total film thickness and having a first and a second surface;
- ii) a top tie layer comprising polypropylene and about 4% TiO₂, said top tie layer comprising about 15% of the total film thickness and being positioned adjacent to said first surface of the core layer;
- iii) a top skin layer comprising an ethylene-propylene-butylene terpolymer, about 0.23% SiO₂ in the form of coated silica, and about 0.2% methyl acrylate antiblock agent, said top skin layer comprising about 2.5% of the total film thickness and being positioned adjacent to said top tie layer;

- iv) a bottom tie layer comprising polypropylene, said bottom tie layer the comprising about 15% of the total film thickness and being positioned adjacent to said second surface of the core layer; and
- v) a bottom skin layer comprising an ethylene-propylene-butylene terpolymer and further comprises about 1.2% silicone oil antiblock, and about 0.1% crosslinked silicone antiblock slip agent; said bottom skin layer comprising about 4% of the total film thickness and being positioned adjacent to said bottom tie layer; and
wherein the film does not exhibit creep in a Hayssen Vertical Fill, Form and Seal (VFFS) hot tack test at 280-310°F.